FIG. 1A

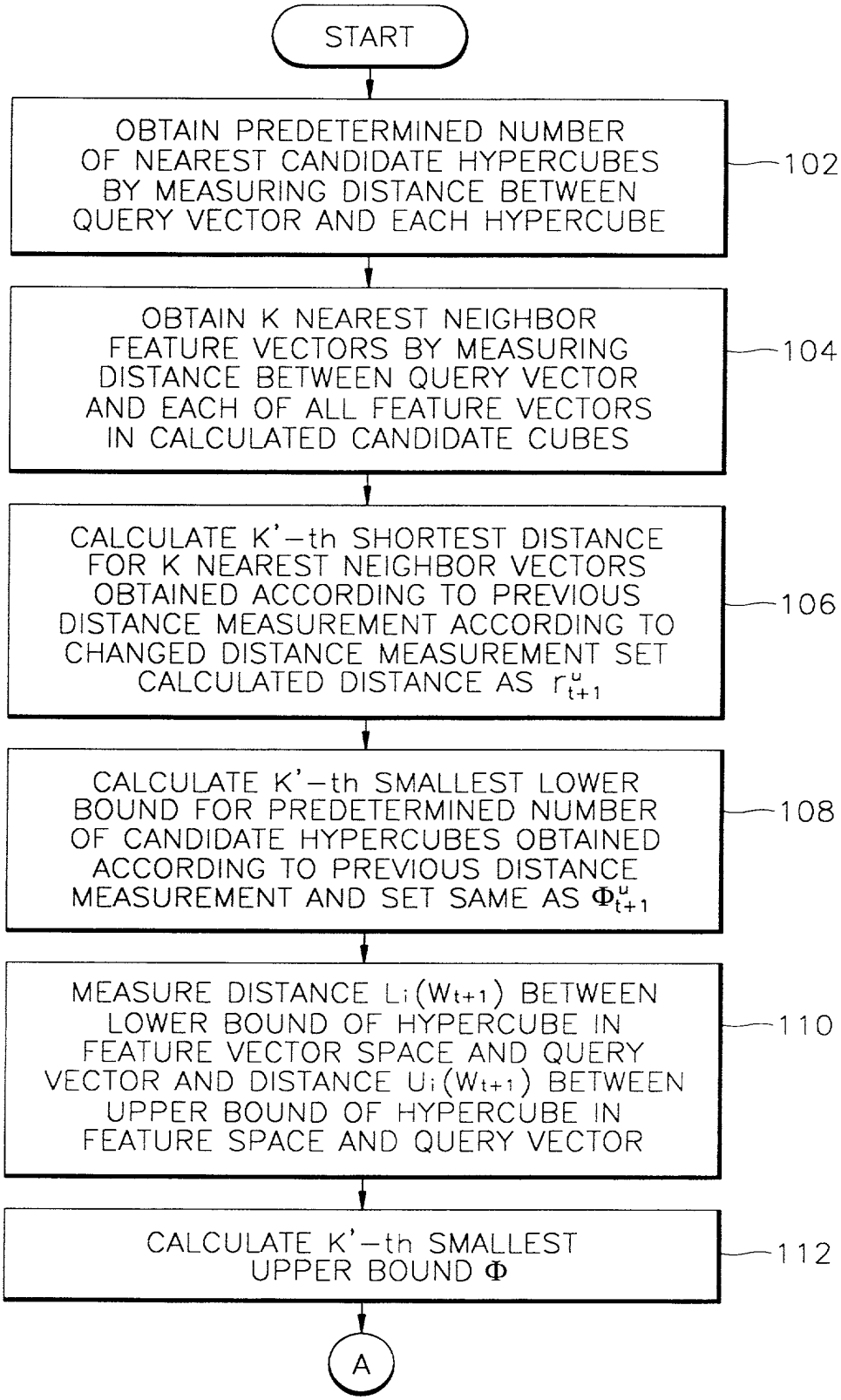

START
OBTAIN PREDETERMINED NUMBER OF NEAREST CANDIDATE HYPERCUBES BY MEASURING DISTANCE BETWEEN QUERY VECTOR AND EACH HYPERCUBE
102
OBTAIN K NEAREST NEIGHBOR FEATURE VECTORS BY MEASURING DISTANCE BETWEEN QUERY VECTOR AND EACH OF ALL FEATURE VECTORS IN CALCULATED CANDIDATE CUBES
104
CALCULATE K'−th SHORTEST DISTANCE FOR K NEAREST NEIGHBOR VECTORS OBTAINED ACCORDING TO PREVIOUS DISTANCE MEASUREMENT ACCORDING TO CHANGED DISTANCE MEASUREMENT SET CALCULATED DISTANCE AS r^{u}_{t+1}
106
CALCULATE K'−th SMALLEST LOWER BOUND FOR PREDETERMINED NUMBER OF CANDIDATE HYPERCUBES OBTAINED ACCORDING TO PREVIOUS DISTANCE MEASUREMENT AND SET SAME AS Φ^{u}_{t+1}
108
MEASURE DISTANCE $L_i(W_{t+1})$ BETWEEN LOWER BOUND OF HYPERCUBE IN FEATURE VECTOR SPACE AND QUERY VECTOR AND DISTANCE $U_i(W_{t+1})$ BETWEEN UPPER BOUND OF HYPERCUBE IN FEATURE SPACE AND QUERY VECTOR
110
CALCULATE K'−th SMALLEST UPPER BOUND Φ
112
A

FIG. 1B

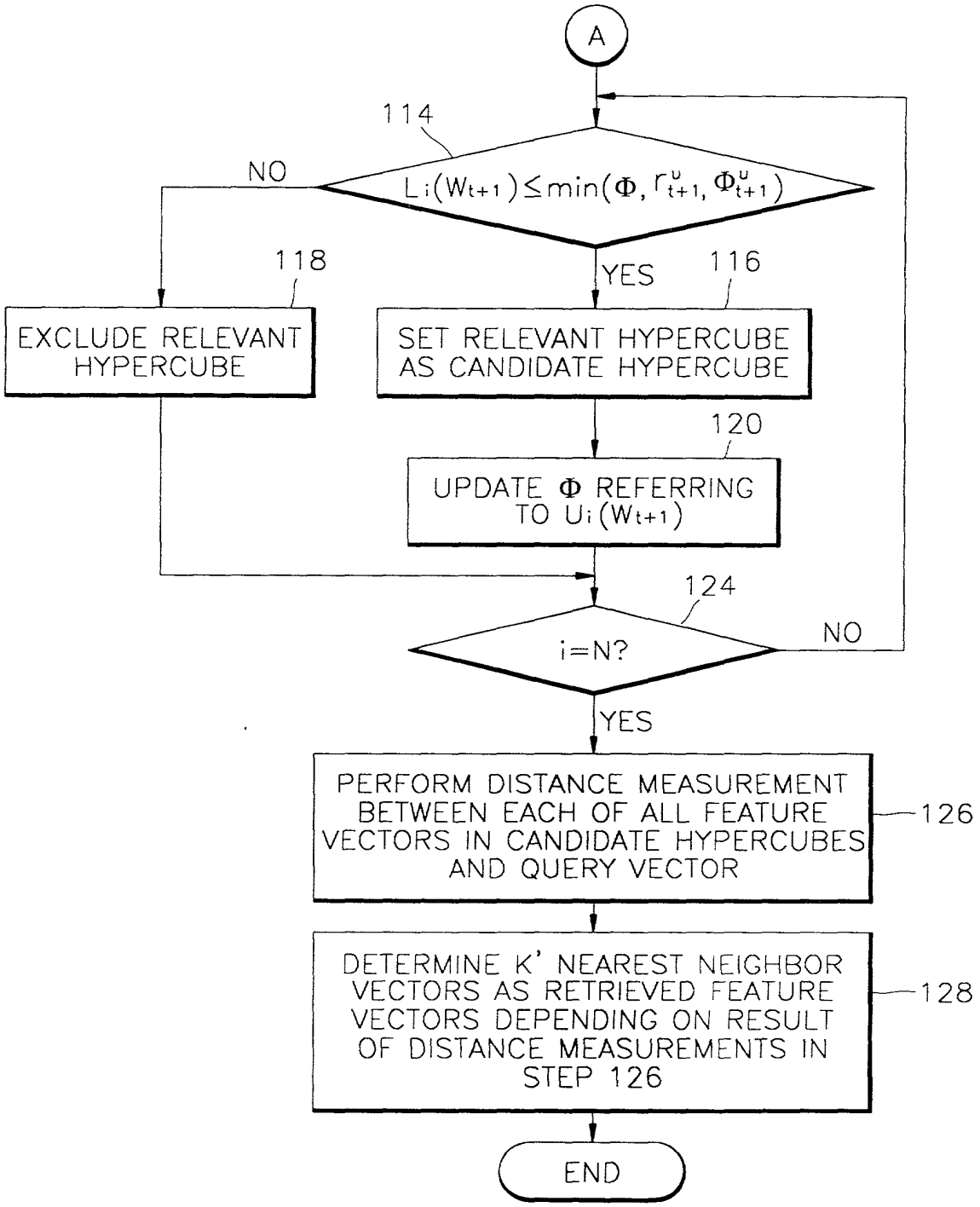
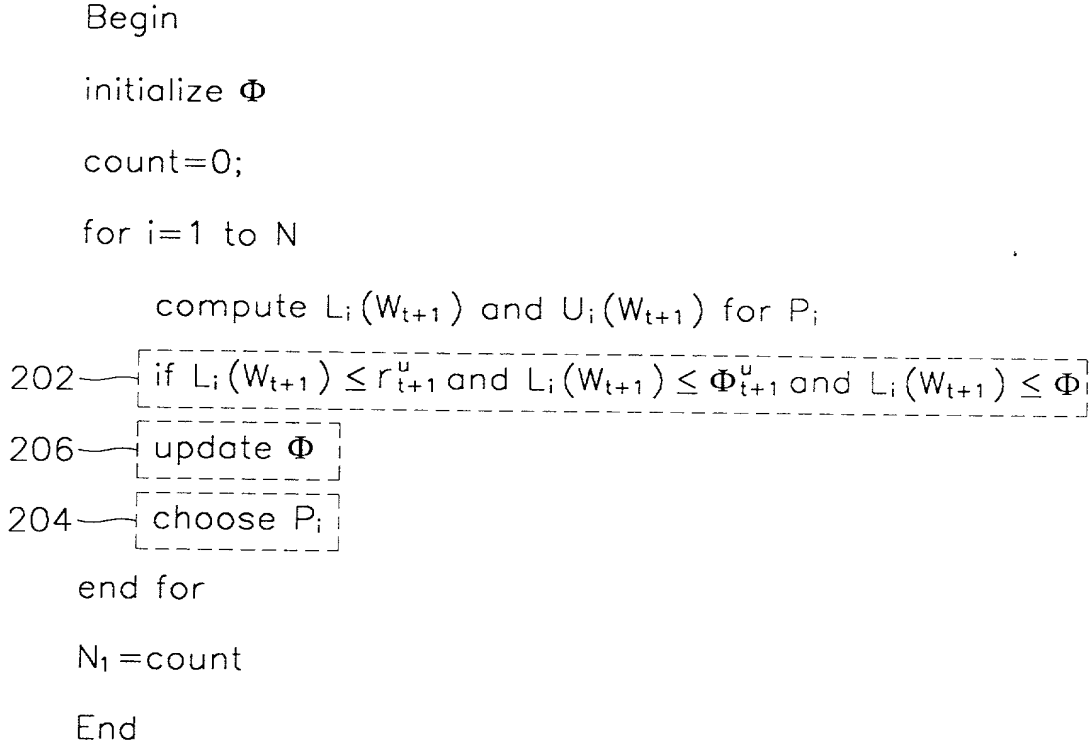

A
114
NO
$L_i(W_{t+1}) \leq \min(\Phi, r^u_{t+1}, \Phi^u_{t+1})$
YES
116
118
EXCLUDE RELEVANT HYPERCUBE
SET RELEVANT HYPERCUBE AS CANDIDATE HYPERCUBE
120
UPDATE Φ REFERRING TO $U_i(W_{t+1})$
124
i=N?
NO
YES
PERFORM DISTANCE MEASUREMENT BETWEEN EACH OF ALL FEATURE VECTORS IN CANDIDATE HYPERCUBES AND QUERY VECTOR
126
DETERMINE K' NEAREST NEIGHBOR VECTORS AS RETRIEVED FEATURE VECTORS DEPENDING ON RESULT OF DISTANCE MEASUREMENTS IN STEP 126
128
END

FIG. 2


Begin
initialize Φ
count=0;
for i=1 to N
compute $L_i(W_{t+1})$ and $U_i(W_{t+1})$ for P_i
202
if $L_i(W_{t+1}) \le r^u_{t+1}$ and $L_i(W_{t+1}) \le \Phi^u_{t+1}$ and $L_i(W_{t+1}) \le \Phi$
206
update Φ
204
choose P_i
end for
N_1 =count
End